ATTACK DP, DPX

Attack®

HEAT TECHNOLOGY PRODUCER

BOILER PREFERENCES

- *Modern timeless design*
- *High-efficient tubular exchanger „flue gas - water“ - ATTACK DPX*
- *High combustion efficiency - Low fuel consumption Low production of emissions and ash*
- *Wide output scale of manufactured boilers*
- *Suction fan ensures balanced and efficient combustion and dustless operation*
- *Fluently modulated rotations of fan*
- *Combustion of soft and hard wood*
- *Voluminous boiler hopper ensures longer heating duration at one fuel dose*
- *Possibility to load bigger wood logs*
- *Minimum waste amount*
- *Easy attendance and simple cleaning*
- *Automatic boiler stop by fuel burn-out*
- *Equipped with aftercooling circuit against water overheating in the boiler*
- *Quality boiler steel of 6 mm thickness is used for boiler production*
- *Boiler fulfils criteria of the highest class under the European norm EN303-5*

WOOD GASIFYING BOILER

ATTACK DP, DPX

*The wood gasifying boilers **ATTACK DP** and **ATTACK DPX** are intended for economical and ecological heating of dwelling houses, cottages, small plants, work rooms and similar objects. Prescribed fuel for DP and DPX boilers is dry wood. At full utilization of the hopper there is possibility of continual burning for 8 - 12 hours.*

www.attack.sk

*The **ATTACK, s.r.o company** as the largest Slovak manufacturer of heat technology, is specialized and focused only on the heat technology of the following product lines:*

***- Floor standing solid fuel boilers -** wood gasifying, pellet, universal*

- Floor standing cast iron boilers

***- Wall hung condensing boilers -** with tank d.h.w. heating, instantaneous d.h.w. heating, with possiblility of d.h.w. heating in the external tank*

***- Wall hung atmospherical boilers -**with tank d.h.w. heating, instantaneous d.h.w. heating, with possiblility of d.h.w. heating in the external tank*

***- Tanks for d.h.w. heating -** directly and indirectly heated*

- Accumulation tanks

- Solar technique

The ATTACK, s.r.o. company´s product portfolio is characterized by the wide assortment of the ATTACK® products, classified by concrete product type, output and kind of fuel - solid fuel or biomass in the nature of wood or wood pellets, natural gas, LPG-propane.

All the ATTACK, s.r.o. company´s products are manufactured under the trademark of ATTACK® and they belong to the top of their class.

With their parameters, high efficiency and low negative effect to the enviroment, they reach parameters of the best European products.

The ATTACK, s.r.o. company is holder of the quality certificate ISO 9001 for manufacturing, service, namagement and development of boilers. All the products are approved and tested by the CE and GOST certificates.

The ATTACK, s.r.o. company has achieved plenty of awards by aggregate committee of specialists - from honourable mentions to gold medals - at domestic and international exhibitions.

EXPORT ACTIVITIES OF THE ATTACK, S.R.O.

Export activities of the company reach 75% of the all EU countries , to Ukraine, Russia, Asian countries to east of Russia, to USA and Canada.

France, Belgium, Netherlands, Denmark, Italy, Lichtenstein, Germany, Poland, Czech republic, Austria, Slovenia, Greece, Norway, Sweden, England, Ireland, Spain, USA, Canada, New Zealand, Russia, Serbia, Ukraine, Latvia, Lithuania, Estonia, Belorussia, Kazakhstan, Uzbekistan, Romania, Bulgaria, Moldavia,...
EXPORT - ATTACK, s.r.o.

ATTACK - "Timeless boilers made by the most modern technology "

Rudolf Bakala
General Director

Dear customer,
in your hands you are holding prospect to the special product, for which we used all our advantages. The ATTACK product is manufactured by the most modern production technologies, that we own. As the largest Slovak manufacturer, exporting to 39 countries we realize, that every production process projects into the product´s lifetime and naturally - into your satisfaction. Thereby we use only the best means - from special boiler tinplate and precise laser material dividing to the most important one - watertight weldments. These are performed exclusively robotically, in accurate fixtures, to eliminate errancy caused by human factor. I am sure, that our product will make you satisfied and will serve you for many years.

Rudolf Bakala
General Director ATTACK, s.r.o.

INPORTANT FACTORS THAT INFLUENCE QUALITY OF THE PRODUCT:

ATTENTION !!! ***Before choice of the boiler´s trademark should the customer, resp. future user know the producer´s technology that is used for manufacturing of the concrete product and directly influences the quality and lifetime of the product..***

RESEARCH AND DEVELOPMENT - PRODUCERS LABORATORY

The ATTACK, s.r.o. company has its own research and development center*, where every year the research and technical workers innovate and prepare new and more efficient products, which consume less of primary energy and produce less of damage emissions during the combustion process and therefore their operation has lower negative influence on the environment.*
Every year the company invests considerable purse to research nad development in the biomass combustion sphere. ***For the research we use the most modern test institute*** *for heating boilers, where it is possible to provide constant measurements on these boilers. The accuracy of each tesing house appliance exceeds the requirements of actual European norms and legislation.The test results are applied to paricular company products.*

CHOICE OF STEEL PLATE USED BY THE PRODUCER

Boilers are manufactured from special steel plate for heating which is purchased from one supplier U.S. STEEL Košice. *The choice of steel plate has a cardinal influence on boiler life time and quality.*

TRADE NETWORK OF ATTACK, S.R.O.

Large trade networks, which we have built in all the regions of Slovakia and whole Europe are the guarantee to build up the commercial relationships ***and to availability of ATTACK® products for all customers.*** *Society also works intensively on extension of activity to next and next countries all over the world.*

SPARE PARTS AVAILABILITY

Logistics and spare parts deliveries of ATTACK, s.r.o. belong to ***the best and the fastest between the producers of heat technology.*** *Spare parts are available to you through the network of authorized service centers of ATTACK®. If the required part is not on stock of authorized seller or service center, it is ordered and delivered directly from producers central stock in Vrutky. The ATTACK, s.r.o.company* ***guarantee the spare parts availability*** *for all the products regardless on the product range or age.*

TECHNICAL SUPPORT

The ATTACK, s.r.o. company regularly (annually) offers training to the business partners in its own training center or directly in customer´s premises. Moreover, the ATTACK, s.r.o. company continually provides technical help by means of media (telephone, e-mail, fax). Within technical consulting you are provided with professional technical information and recommendations accurately to your heating system.

PRODUCTION OF ATTACK, S.R.O.

*The ATTACK, s.r.o. produces the articles in **own production halls** divided into production of biomass boilers from cast iron and steel, wall hung gas boilers and floor standing cast iron boilers.*
*The ATTACK, s.r.o. **disposesof latest and most modern technology** for boiler production (robotized welding workstations, laser workstation,CNC workstation, bending with active angle measuring,...) which exceed actual European standard in many ways and which markedly increase the quality of final products.*

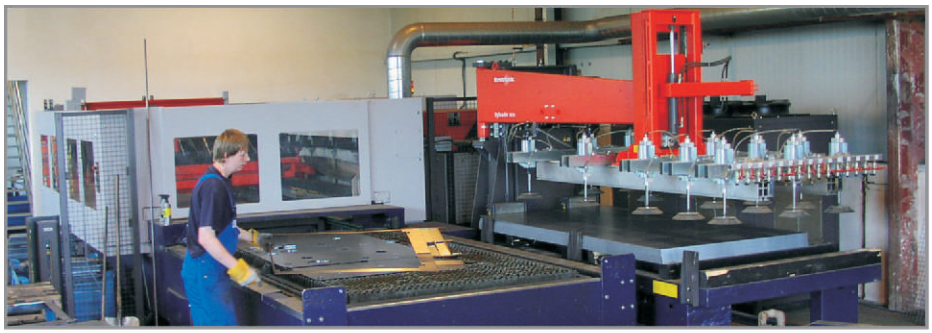
TECHNOLOGY OF BIOMASS BOILER PRODUCTION OF ATTACK, S.R.O.

*The steel biomass boilers of **ATTACK, s.r.o.** company are produced on a base of own development according to certified quality policy system ISO 9001.*

*All the operations during the boiler body production are provided intro-plant, **i.e. we do not work in cooperation. By this system we can control the high standard of produced boilers.***

Laser cutting of material

*Technology: **Bystronic***
For this process we use the latest cutting technology, CNC laser cutting machines Bystronic. It is Swiss cutting technology of high standard,which use the high powerful laser ray for its function. Advantage of this laser material cutting is an extrem precision of cut parts of the ATTACK products.



Bending

We provide the bending process on bending hydraulic compactors with contactless laser measure system. This system assures following the equal angle also in various divergences of used material (comprehensice tolerance of plate thickness). The result is accurate required bend of the piece.

CNC robot welding

*Technology: **welding robots Romat®***

For robot welding we use the welding workplaces of CLOOS company. Advantages are in good quality of produced bodies and high productivity.

The preassure test and final revision

During this process is the boiler exchanger tested by 1,5 multiple of the max. operation pressure .
By pressure test of boiler exchangers, the first class boiler quality is assured. During the final revision every boiler is tested by control system function tests. Final revision assures 100% quality of our products.

ATTACK DP ATTACK DPX

MAIN ADVANTAGES OF BOILERS ATTACK DP

*The **ATTACK DP** boiler line represents basic platform of the ATTACK wood gasifying boilers.*

*Their **main advantage** is simple construction, consisting from feeding and combustion chamber, high resistant refractory jet and ashtray, rib-shaped exchanger and mineral isolation.*

*Boiler body is welded from **special boiler steel of 6mm thickness** to ensure **long lifetime of boiler**. Next advantages are: high reliability, low wood consumption, easy attendance, dustless operation, combustion of soft and hard wood, big hopper, minimum of waste, automatic boiler stop at fuel burn-out, integrated aftercooling circuit for safe operation and prevention of emergency state.*

Boiler fulfils criteria of the highest class under the European norm EN303-5.

MAIN ADVANTAGES OF THE NEW BOILER LINE KOTLOV ATTACK DPX

***The new boiler line ATTACK DPX is equipped with more efficient tubular exchanger flue gas – water.** Special movable turbulators installed inside exchanger serve to brake and to make the turbulent flow of the flue gas through the exchanger. Thereby it comes to higher heat transfer through the steel exchanger wall into the heating water.*
*From technical view it is a boiler line with high efficiency, low flue gas temperature and more effective combustion process. **Achieved efficiency of the ATTACK DPX boiler is 90%.** **By installation of more efficient boiler of the ATTACK DPX line it comes to significant decrease of the operation costs**, projected into the fuel savings, in comparison with less efficient boilers that combust same fuel.*
From the social-wide view, it is an enviroment-friendly source, combusting wooden biomass ,which is a kind of CO2-neutral fuel.
Considering the harmful emissions, the average concentration of CO value in the flue gas, is during operation of the LAMBDA version under the level of 200 mg/m3 related to 10% of O2.
*Under the valid European norm EN303-5, classifying solid fuel boilers by efficiency and emissions to individual classes, the ATTACK DPX boiler (version LAMBDA) reaches **25 times lower concentration of harmful** CO emisions in the flue gas incomparison with the allowed level of this norm!*
Turbulators also enable easy exchanger cleaning.The clean exchanger reaches the most effective operation parameters - high efficiency.

COMPARISON OF PROPERTIES OF WOOD GASIFYING BOILERS "ATTACK DP25" AND "ATTACK DPX25"

Parameter	ATTACK DP25	ATTACK DPX25
Exchanger	flat, rib-shaped	tubular, with turbulators
Efficiency(%)	**85**	**90 - Standard a Profi, 91 - Lambda**
Exchanger cleaning	manual, brush	turbulators by lever move
Connection of flue gas outlet	horizontal	horizontal or vertical, according to disposition possibilities of customer
Version	**STANDARD, PROFI**	**STANDARD, PROFI, LAMBDA**
Dimensions:		
Width	690	690
Height	1235	1235
Length	1090	1140
Input (W)	50 - 90	50-90
Flue gas temperature	230°C	180°C
Depth of chamber	590	590
Water volume in the boiler	68 l	100 l
Boiler weight (dry)	370 kg	430 kg
Regulation of flue gas temperature	no	yes - Lambda version
Combustion regulation by flue gas content	no	yes - Lambda version
Control of heat-up flap	manual, depends on attendance	automatic - joined with feeding door

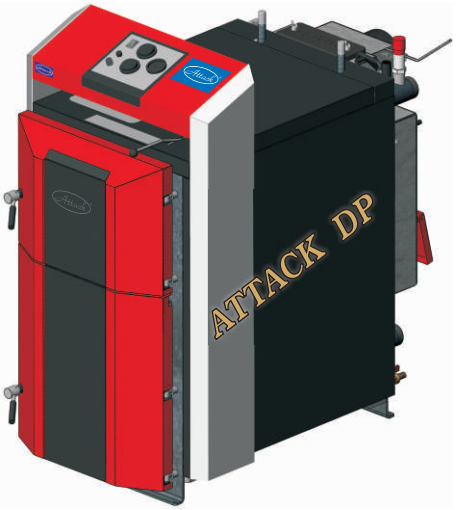
ATTACK DP, DPX

*Wood gasifying boiler **ATTACK DP, DPX** is modern boiler that thanks to its technology gains maximum from wood and at once - it saves the enviroment by its ecological combusting.*

Wood is favourite kind of fuel, because it gives cosy warmth and it grows practically beyond the door.

BOILER CHARACTERISTICS

ATTACK DP



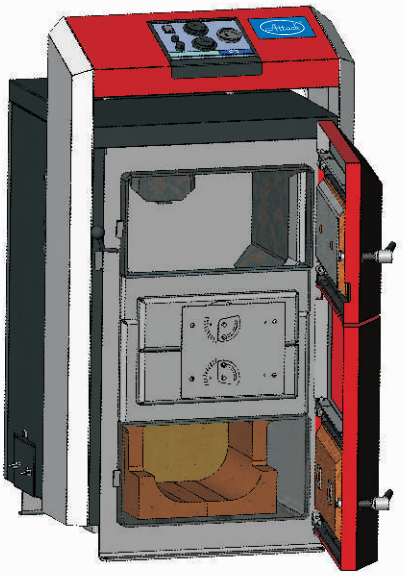
- ***Steel warm water boiler for wood logs gasification***
- ***Width of steel plate parts that are in contact with flame is 6mm***
- ***Effective suction fan***
- ***Integrated aftercooling circuit***
- ***Boiler efficiency of 84-86%***
- ***Low fuel consumption***
- ***Width of 690mm suites for easy installation in boiler rooms with door of 800mm width***
- ***Maximum length of wood logs is up to 1m (model DP75, DP95)***
- ***Diameter of chimney connection Ø150mm***

ATTACK DPX

- ***Steel warm water boiler for wood logs gasification***
- ***Width of steel plate at places in contact with flame is 6mm***
- ***Tubular exchanger***
- ***Exchanger cleaning by turbulators***
- ***Effective suction fan***
- ***Integrated aftercooling circuit***
- ***High efficiency of 89 - 91,3%***
- ***Very low fuel consumption***
- ***Width of 690mm suites for easy installation in boiler rooms with door of 800mm width***
- ***Maximum length of wood logs is up to 1m***
- ***Adjustable flue gas outlet enabling chimney installation following customer´s requirements in horizontal or vertical direction***
- ***Diameter of chimney connection Ø150mm***

DESCRIPTION OF BOILER

ATTACK DP



***The ATTACK DP** boiler line represents basis in the offer of wood gasifying boilers for biomass from the ATTACK, s.r.o. company.*
Simple and by years approved construction of these boilers ensures minimum space requirements, high reliability, low wood consumption, easy attendance, long lifetime and finally- as much important- customer´s satisfaction.
***The ATTACK DP boiler** also **saves your time for wood preparation**, because it enables **combustion of wood logs up to 1m length.** Quick and easy heating up is enabled by manual heat up flap and ventilator, easy cleaning is ensured by specially shaped ashtray and scope for ash removing.*

Boiler enables permanent burning and thereby eliminates need for repeated heating up in the boiler after longer period.
***Integrated aftercooling circuit** serves for boiler protection and ensures its safe cool down to operation temperature in case of overheating.*

Boiler can be purchased in several modifications.

Basic version of control represents STANDARD *that controls elementary boiler parameters like boiler temperature or temperature at which should be the ventilator stopped after fuel burn-out.*

Advanced version is the PROFI*, that cooperates with room thermostat, modulates boiler output by changing rotations of the fan.*

ATTACK DPX

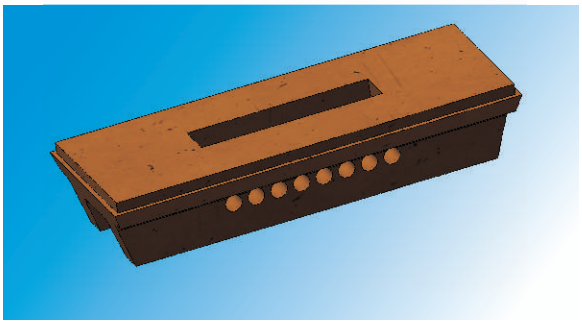
*The **ATTACK, s.r.o.** made the best account of the long-year experience with heat technology at development, production, testing, certification and installation of the **ATTACK** boilers.* ***The most modern boiler line - the DPX - with excellent parameters was created by the new development center.***

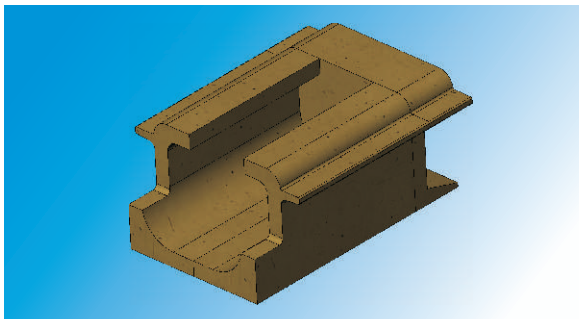
Boilers of the ATTACK DPX line *achieved* ***the „Efficienza Innovazione“ award in Milano in Italy for contribution into the field of the most effective biomass energy usage.*** *It was achieved only thanks to implementation of the most modern technologies like the LAMBDA control, enabling active combustion process regulation following the percentual oxygene content in flue gas and the flue gas temperature.*

The excellent efficiency of 91,3 % *was reached by special boiler construction with* ***tubular exchanger and turbulators****, together ensuring turbulent flow of flue gas and thereby, higher heat transpher through steel wall of pipe into water.*

Cleaning function is one of the advantages of turbulators, and so there is no need to clean exchanger by brushes.

*We recommend to install the **ATTACK DPX** boilers together with accumulation tanks to increase total efficiency and flexibility of the heating system.*





FUEL

Prescribed fuel are dry chopped wood logs with humidity of 12-20% and heat value of15-17 MJ/kg, alternatively it is possible to burn briquets with opening up to humidity of 10-12% and heat value of 18,7 MJ/kg.

It is possible to burn any kind of dry wood, especially wood logs.

It is possible to burn small wooden waste only in minimum amount (max.10%), together with the wood logs.

Thanks to the long fuel hopper, the most work-demanding act of the wood processing - dividing into small pieces - is replaced and removed.

Wood gasifying boiler "ATTACK DP " is equipped with two types of regulation: STANDARD, PROFI

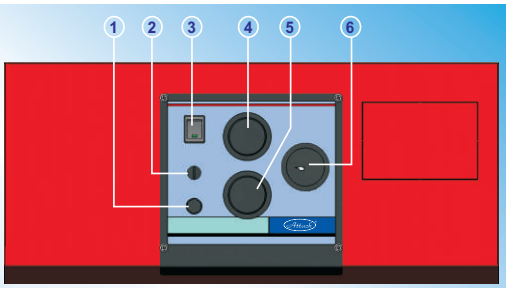
Wood gasifying boiler "ATTACK DPX " is euipped with three types of regulation: STANDARD, PROFI, LAMBDA

MODIFICATIONS OF BOILERS ATTACK DP, DPX

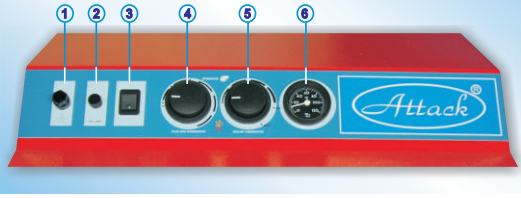
ATTACK DP STANDARD, ATTACK DPX STANDARD

Wood gasifying boiler "ATTACK DP, DPX Standard" is controlled by boiler and flue gas thermostat.

ATTACK DP, DPX 25-45



ATTACK DP 75-95



1 - Emergency thermostat with reset
2 - Fuse
3 - Main switch
4 - Flue gas thermostat
5 - Boiler thermostat
6 - Thermomanometer

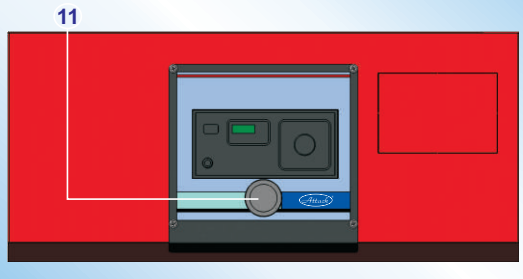
Description:

1. Reset - boiler protection against overheating (after achieving temperature higher than 110°C is boiler disconnected from electricity mains)
2. Fuse - boiler protection against short circuit
3. Main switch - boiler start and in the case of need also complete boiler stop
4. Flue gas thermostat - when the flue gas temeprature decreases under the set value,the fan is stopped
5. Boiler thermostat - serves for setting of required temperature of water in boiler (when the set temperature is exceeded,
the fan is stopped and boiler works at min. output;when the temperature decreases, the fan is started again and boiler works at max. output)
6. Thermomanometer - shows output temperature and actual pressure of heating water in boiler

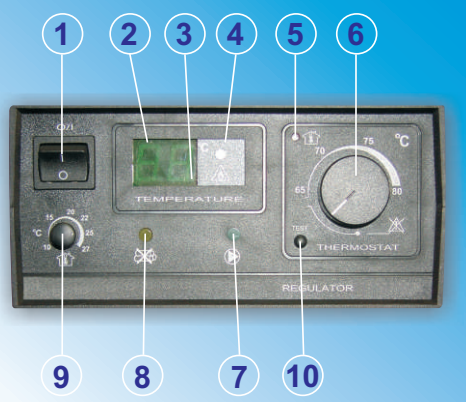
ATTACK DP PROFI, ATTACK DPX PROFI

Wood gasifying boiler "ATTACK DP, DPX Profi" is controlled by electronic regulator, which is intended to regulate temperature of warm water boilers for wood combustion. Advantage of the Profi version of ATTACK boilers in comparison with the Standard version is represented by higher attendance comfort, possibility of boiler output regulation to achieve optimal parameters by wood combustion. Regulator permanently measures temperature of water in the boiler and indicates its value on display and also controls flue gas thermostat and C.H. pump.

ATTACK DP, DPX 25-45



ATTACK DP 75-95



1 - Main switch

2 - Display showing boiler temperature

3 - Control light of heating-up process

4 - Control light of boiler overheating

5 - Control light of boiler thermostat

6 - Knob of boiler thermostat

7 - Control light of C.H. pump operation.

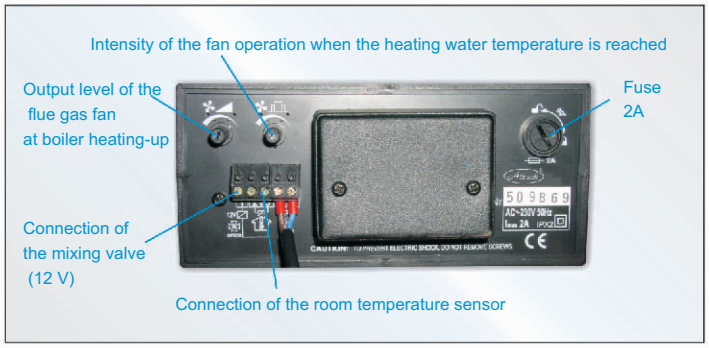
8 - Control light of fuel shortage

9 - Knob of room /flue gas thermostat

10 -Button TEST (by pressing it, the temperature set by knob 6 appears and the flue gas fan is stopped for a while at the same moment)

11 - Thermomanometer

Rear view at electronic regulator:

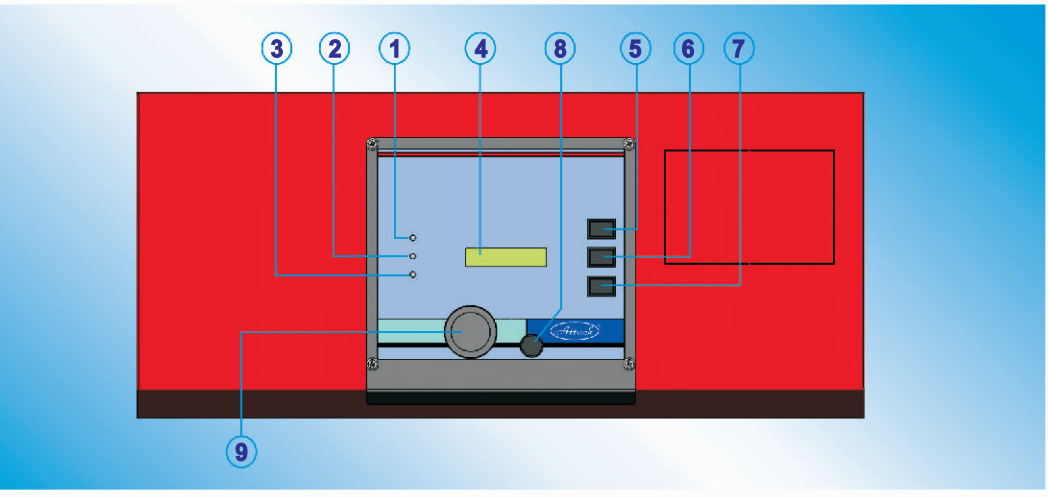

Intensity of the fan operation when the heating water temperature is reached
Output level of the flue gas fan at boiler heating-up
Fuse 2A
Connection of the mixing valve (12 V)
Connection of the room temperature sensor

ATTACK DPX LAMBDA

*Wood gasifying boiler **„ATTACK DPX Lambda“** uses the most advanced technology for combustion process control to achieve the excellent values of emissions and efficiency. Regulation can separately control amount of inlet primary and secondary air in accordance to data about oxygene content from the Lambda probe, boiler temperature and flue gas temperature. All operation parameters are displayed on well-readable multi-line LCD display.*

It is possibile to change parameters by buttons on the boiler control board. Eventual error or warning messages are signalized by LED diodes.

After the fuel bun-down is the boiler automatically switched off adequately to flue gas temperature or percentual oxygene content in flue gas. All modifications of the ATTACK DPX boilers can be equipped with addtional regulator that ensures control of accumulation tank, solar panels or ther sources of heat energy in different designes of heating systems following the customer´s request.



1 - Control light of boiler operation
2 - Control light of error messages
3 - Control light of warning messages
4 - Multi-line LCD display
5 - Button of boiler start and parameter change
6 - Button of boiler stop and parameter change
7 - Enter (button to confirm and to enter into menu)
8 - Reset
9 - Thermomanometer

Description:

1: *Lights after boiler start by the „+“ (5) button, expires after fuel burn-down or by manual stop by the „-“ (6) button*

2: *Lights in case of the following errors: - incorrect value of flue gas temperature*

3: *Lights or flickers in accordance to the fault importance:*

Reset - lights, Incorrect boiler temperature- lights, Too high boiler temperature -flickers , Boiler overheating - do not open (boiler temperature over 90°C) - flickers

4: *Displays operation data enables browsing in menu. If the boiler is out of order for more than 15min and no error is displayed, display illumination is automatically shut down.*

5: *Display illumination is turned on. After repated pressing is boiler started or fuel loading is enabled.*

6: *Serves for emergency boiler stop. It is used only in case that there is no water in the system or the sensor for overheating does not work.*

7: *Serves for enter into menu and confirmation of the set value.*

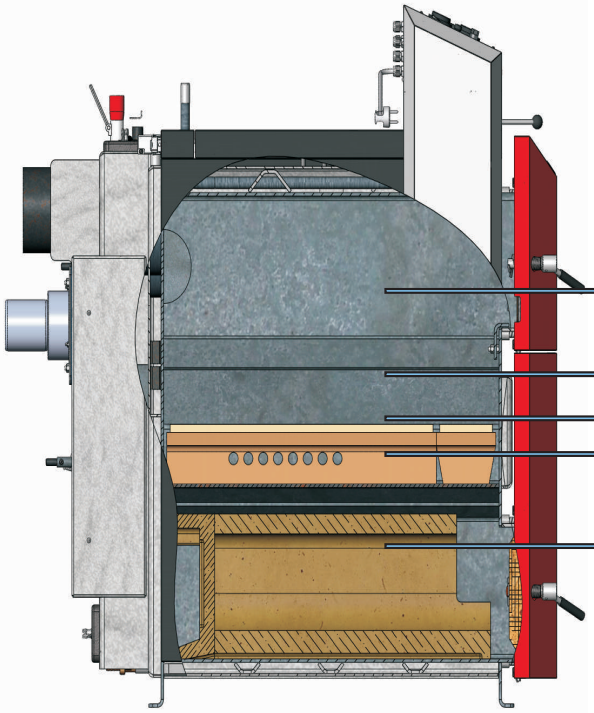
8: *Button of safety boiler protection against overheating.*

If temperature of boiler water exceeded 95°C, the boiler is stopped. It is possible to turn the boiler on, only when the temperature decreases.

PYROLYSIS OF WOOD

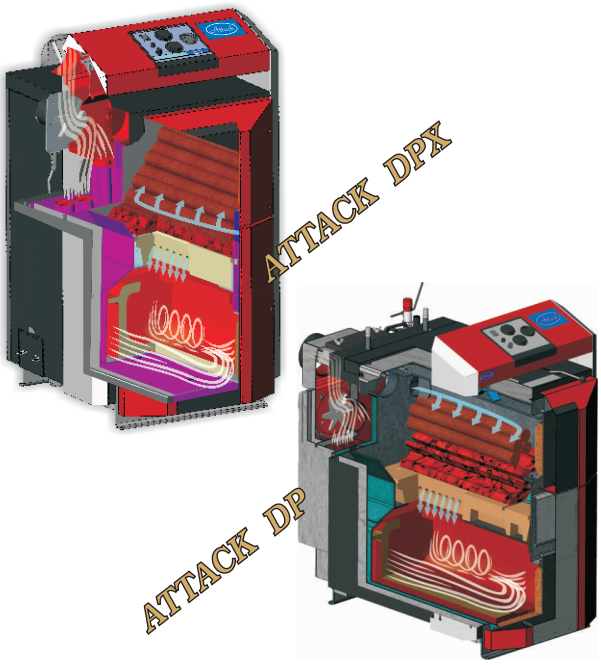
Wood gasification is traditional technology that improves efficiency of wood combustion that improves efficiency of wood combustion. Combustion means rapid oxidation of material, when warmth is released.
Operation of pyrolising boiler can be divided into 3 processes - warming and drying of wooden material in the hopper, it comes to releasing of water steams, gas contents and to combustion of solid content (charcoal).

Each of these phases requires different conditions. However, there is only one possibility of regulation by usual devices - closing of the air inlet. Thereby, there is lack of air for one process and too much air for another one and also the temperature is sometimes sufiicient and sometimes not. Because of unperfect combustion, many combustible contents wastely flow out through the chimney or react with other products of combustion and make tar.



BOILER FUNCTION

By loading of new fuel - at the temperature of 200°C - it comes to drying of wood. Near to the nozzle, at the temperature of 200-700°C and limited air inlet, the wood is scanned, the wood gas is emitted and the solid elements are produced. Emitted gas flows into the combustion chamber, burns and emits heat under the sufficient air inlet.



Charcoal is burned on the grate, under the sufficient air inlet. It reacts with air and emits combustible CO, which is immendiately burned.

Incombustible waste goes through the nozzle to the ashtray. Advantage of this approach is, that every combustion phase has ideal conditions - in the regulated amount of primary and secondary air, as well as in optimum differentiation of temperatures for individual phases of combustion.

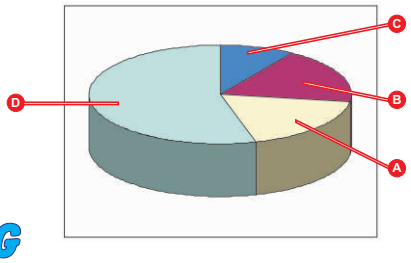
Thanks to better usage of warmth in the wooden material, there is lower fuel consumption and wide scale of the output regulation at keeping high combustion efficiency.

WOOD - GAS

Under the certain conditions (temperature, air inlet), the wood is decomposed into gas, liquid and solid contents. Gas content is represented by the wood gas, solid one is the charcoal - basically pure carbon.
Wood gas is emitted while warming the wood with minimum oxygene inlet, and thereby it is only produced, not burned. Heat capacity if the material depends on its chemical content and content of combustible substances.
Wood gas contents 20% of hydrogene, 20% of combustible CO, 0-10% of methane and 50-60% of non-combustible nitrogen.
Thanks to high content of inerth nitrogen, the heat capacity of the wood gas is in the level of 3,5-8,9MJ/m3.

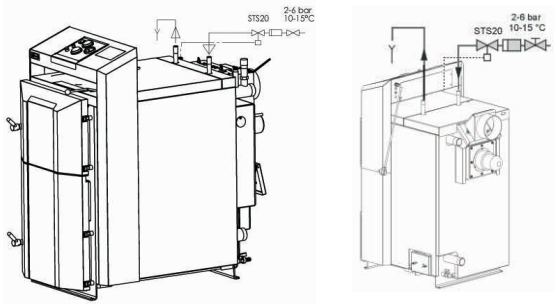
Wood gas:

- A - *20%of hydrogene*
- B - *20% of combustible CO*
- C - *0-10% of methane*
- D - *50-60% of incombustible nitrogen*



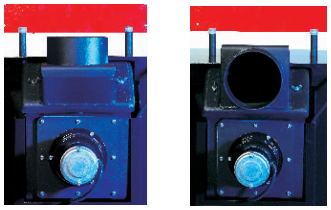
BOILER PROTECTION AGAINST OVERHEATING

Each model of the ATTACK boilers is equipped with exchanger against overheating. After connection of the STS20 valve with the sensor placed in the rear part of the boiler is the boiler protected in the following way. When the water temperature exceeds 95°C, water flows into the cooling circuit to absorb the surplus heat and takes it into the waste.

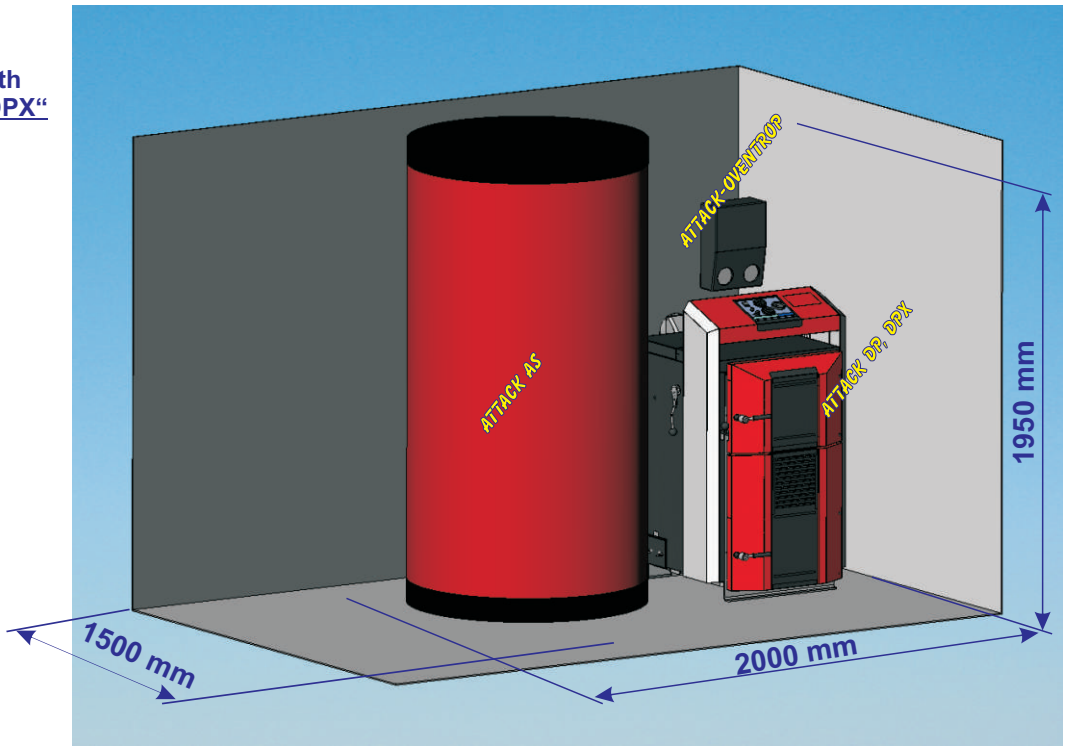


INSTALLATION OF FLUE GAS CONNECTION

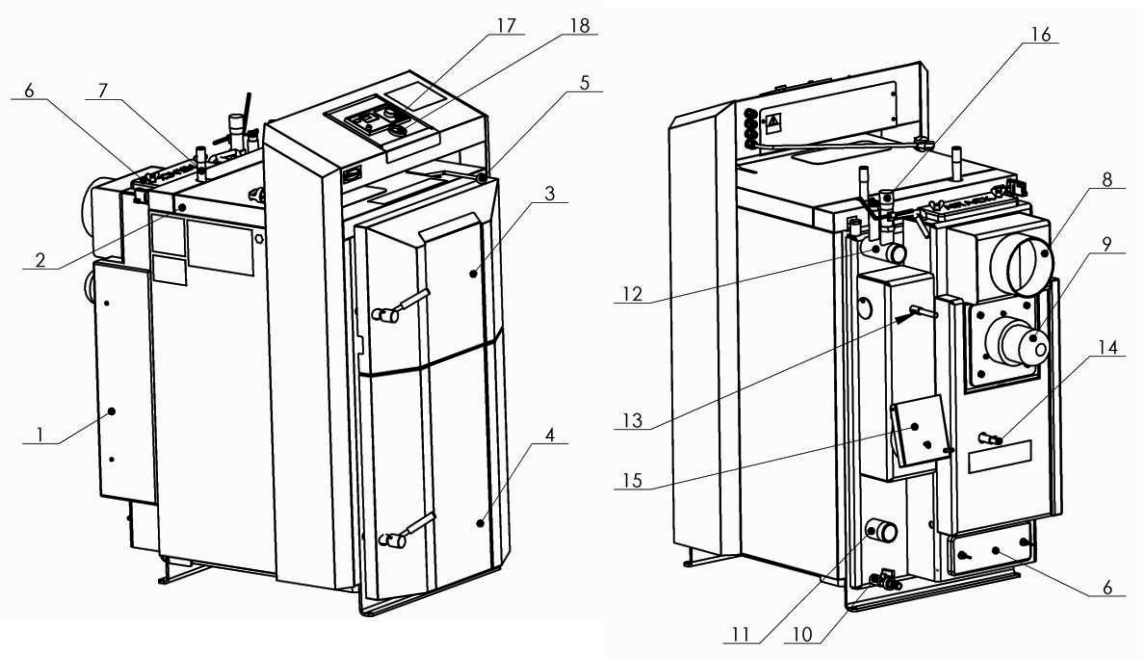
The flue gas connection by the DPX models can be oriented horizontally or vertically by turning the flange for 180° .



Required dimension of the boiler room with boiler „ATTACK DP, DPX“ connected to the accumulation tank ATTACK AS and solar collectors

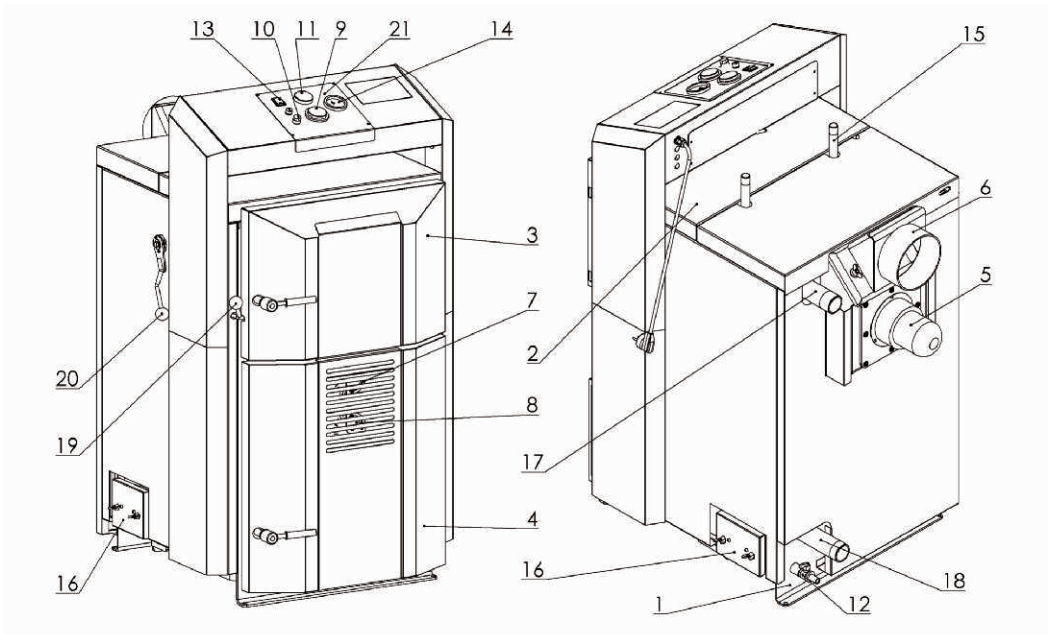


DESCRIPTION OF THE BOILER ATTACK DP



1.Boiler body
2.Front upper cover
3.Door of the feeding chamber
4.Door of the combustion chamber
5.Control of the off-take flap
6.Cleaning opening of the exchanger
7.Aftercooling circuit
8.Flue gas off-take
9.Flue gas fan
10.Outlet valve
11.C.H. return connection
12. C.H. flow connection
13. Primary air control
14. Secondary air control
15. Flap of the air inlets
16. Thermostatic regulator
17. Control electronics
18. Composite thermomanometer

DESCRIPTION OF THE BOILER ATTACK DPX



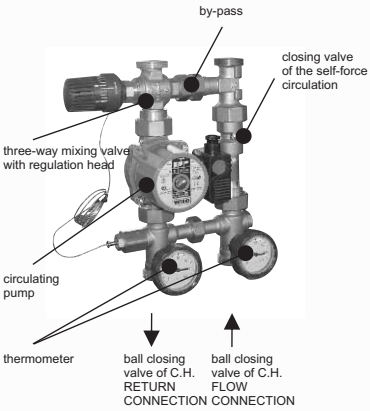
1.Boiler body
2.Front upper cover
3.Door of feeding chamber
4.Door of combastion chamber
5.Suction fan
6.Chimney
7.Primary air suction
8.Secondary air suction
9.Boiler thermostat
10.Reset - emergency thermostat
11.Flue gas thermostat
12. Inlet valve
13. Main switch
14. Thermomanometer
15. Aftercooling circuit
16. Cover of the cleaning opening
17. C.H. flow connection
18. C.H. return connection
19. Pull-rod of the chimney flap
20. Lever of turbulators
21. Control panels

BOILER PROTECTION AND EXTENSION OF THE LIFETIME

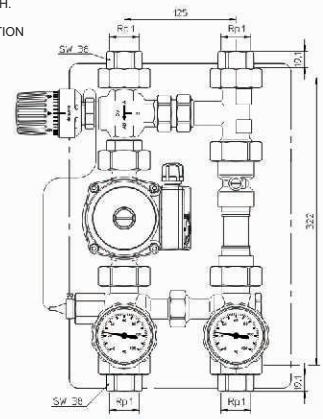
REGUMAT ATTACK-OVENTROP

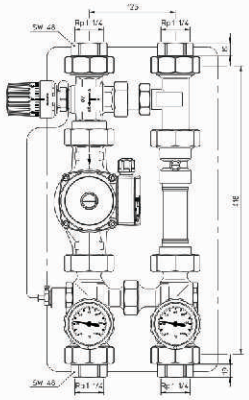
When the temperature of return water flowing into the boiler is low (under 50°C), it comes to production of harmful acids, condensate and tar on the steel walls, and thereby to damage of the boiler´s steel walls.Suitable protective solution to eliminate this harmful effect and to extend lifetime of the boiler is usage of the mixing device ***Regumat ATTACK-OVENTROP.*** *It enables separation of boiler and heating circuit. It prevents boiler undercooling under 65°C and prevents damage of the steel walls.*
The mixing device Regumat keeps constant temperature of the return heating water flowing into the boiler at 65°C, when the thermostatic head is set on the level 5-6. The mixing device ***Regumat ATTACK-OVENTROP*** *guarantees significantly longer lifetime of the boiler.*

Regumat consists of the three-way mixing valve, thermostatic head with capilar, by-pass, valve for self-force circulation (alt. natural circulation), three-grade circulating pump, closing valves, thermometers and isolation. ***This solution is advantageous, because it is compact,enables simple attendance and ensures protection of the steel boiler´s heat exchanger.***


by-pass
closing valve of the self-force circulation
three-way mixing valve with regulation head
circulating pump
thermometer
ball closing valve of C.H. RETURN CONNECTION
ball closing valve of C.H. FLOW CONNECTION

Regumat ATTACK-OVENTROP for boiler:
ATTACK DP,DPX 15,25,35, ATTACK PELLET 30 – DN25
ATTACK DP,DPX 45 – DN32





	Regumat ATTACK-OVENTROP	
Calibre	DN25	DN32
Max. pressure	10 bar	10bar
Max. temperature	120˚C	120˚C
Value of kvs	3,9	5,3
Constructive height of isolation	365 mm	472 mm
Width of isolation	250 mm	250 mm
Axial distance	125 mm	125 mm

ACCESSORIES TO THE ATTACK® BOILERS

ACCUMULATION TANKS ATTACK®

The accumulation tanks ATTACK are intended for accumulation and following distribution of the heat energy from the solid fuel boiler.

MODIFICATIONS OF ACCUMULATION TANKS

ATTACK AK

Description of device
Tank for accumulation and following distribution of heat energy from solid fuel boiler, heat pumps, electroboilers, etc.
Type
Type line of tanks with volume of 500, 800, 1000 litres, also with possibility to install electrical heating device .
Thermal isolation
The accumulation tanks are delivered with detachable isolation of 100mm width, soft polyurethane with leatherette covering.

Specification
Max. operation pressure of the accumulation tank: 6 bar
Max. operation temperature of the accumulation tank: 95 °C
Technical data
Description:
Accumulation tank „ATTACK AK“ is permanently connected to the closed heating system. Internal walls are not enameled. Tanks can be accessorized with electrical heating devices with thread of ***G 6/4“*** *up to the output of 12 kW (suitable output of device is adequate to its length and diameter of tank). Fitting of individual outlets of tank is made according to the connected circuits.*

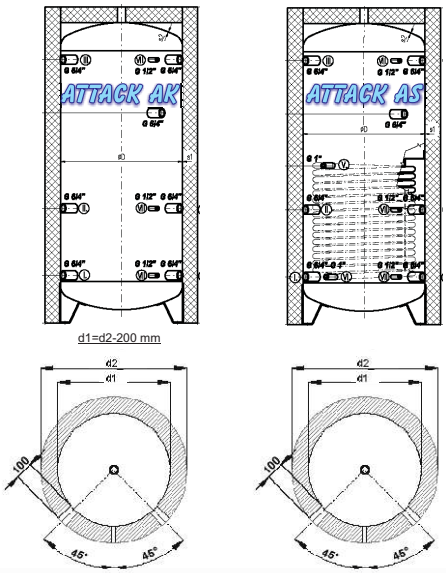
ATTACK AS

Description of device
Tank for accumulation of heating water with single heating coil (e.g. solar system), accessorized with welded flange to fit the tubular exchanger of appropriate size, following concrete application and required output.
Type
Type line of tanks with volume of 500, 800, 1000 litres, also with possibility to install electrical heating device.
Thermal isolation
The accumulation tanks are delivered with detachable isolation of 100mm width, soft polyurethane with leatherette covering.
Specification
Max. operation pressure in the accumulation tank: 6 bar, max. operation temperature in the tank: 95 °C
Technical data
Description:
Accumulation tank is permanently connected to the closed heating system. The accumulation tanks "ATTACK AS" are delivered with welded flanges for exchangers with threads of ***G1“*** *or* ***G 3/4“****. If the welded part on the exchanger is not used, the blinding flange has to be used. Tanks can be accessorized with electrical heating devices with thread of* ***G 6/4“*** *up to the output of 12 kW (suitable output of device is adequate to its length and diameter of tank).*

Advantages of installation with accumulation tanks:

* ***equalisation of inequal boiler output and higher comfort***
* ***lower fuel consume – boiler works at full output, i.e. with optimum efficiency***
* ***long lifetime of boiler and chimney – minimum production of tars and acids at full ouput***
* ***possibility to combine with another means of heating (accumulation electricity, solar devices)***
* ***possibility to combine radiators with underfloor heating***
* ***higher comfort of attendance***

ATTACK AK 500 with isolation	Ø tanks "d2" = 800 mm x height1970 mm
ATTACK AK 800 with isolation	Ø tanks "d2" = 990 mm x height 1750 mm
ATTACK AK 1000 with isolation	Ø tanks "d2" = 990 mm x height 2050 mm
ATTACK AS 500 with isolation	Ø tanks "d2" = 800 mm x height 1970 mm
ATTACK AS 800 with isolation	Ø tanks "d2" = 990 mm x height 1750 mm
ATTACK AS 1000 with isolation	Ø tanks "d2" = 990 mm x height 2050 mm



ACCESSORIES TO THE ATTACK® BOILERS

EQUITHERMICAL CONTROLLER ATTACK® REGU-MAX

Equithermical controller ATTACK REGU-MAX *is the top regulation element for all modifications of wood gasifying boilers* ***ATTACK DPX and DP.*** *Controller ATTACK is intended for regulation of heating systems, including regulation of heating water. It is used for regulation of low-temperature and warm-water systems. it is possible to connect the regulator with two types of room units (with and without display).*

The equithermical regulator ***ATTACK REGU-MAX*** *includes easy installation and wide possibilities of usage.With the ATTACK REGU-MAX it is possible to control these aspects of the heating system :*

- primary boiler circuit of the wood gasifying boiler
- recharging and discharging of accumulation storage devices
- solar system for heating of D.H.W. or additional warming of C.H.
- several heating circuits of different temperature levels
- alternative source of heat
- warming of D.H.W.
- free programmable inputs

ADVANTAGES OF THE ATTACK REGU-MAX

- ***Wide possibilities of usage, economical advantage***
- ***Pre-set basic programs for easier projecting and putting into operation***
- ***Multilingual menu*** *– CZ, DE,GB,FR,IT,NL,ES,PT,HU,PL,RO,RU,TR,S,N*
- ***Intuitive control by buttons with symbols, easy multifunctional button, big size text display***
- ***Simple system extension into the small network*** *– possibility to connect several regulators into the communication network*
  Possibility of regulator´s regimes control by external modem
- ***Sophisticated control of the heating system, enabling higher comfort of attendance***
- ***Equithermic regulation of the heating water´s temperature***
- ***High universality for different design varieties of heating systems using wood gasifying boiler***

SIMPLE INSTALLATION

Simple and quick installation is enabled via connection terminal or connection module with spring terminal for installation to the wall.

CONTROL PANEL

Multifunctional display with illumination
and simply displayed data
Buttons for setting
*Manual control
* Menu for all heating programs
* Setting of heating curves
* Information - overview of temperatures and operation states
Multifunctional buton -
simple setting by turning and pressing
Buttons for quick enter
* Required daily temperature
* Required attenuation temperature
* Required temperature of D.H.W.

OPERATION REGIMES

Heating with and without time program, attenuation regime, summer operation, manual regime, automatic control regime.

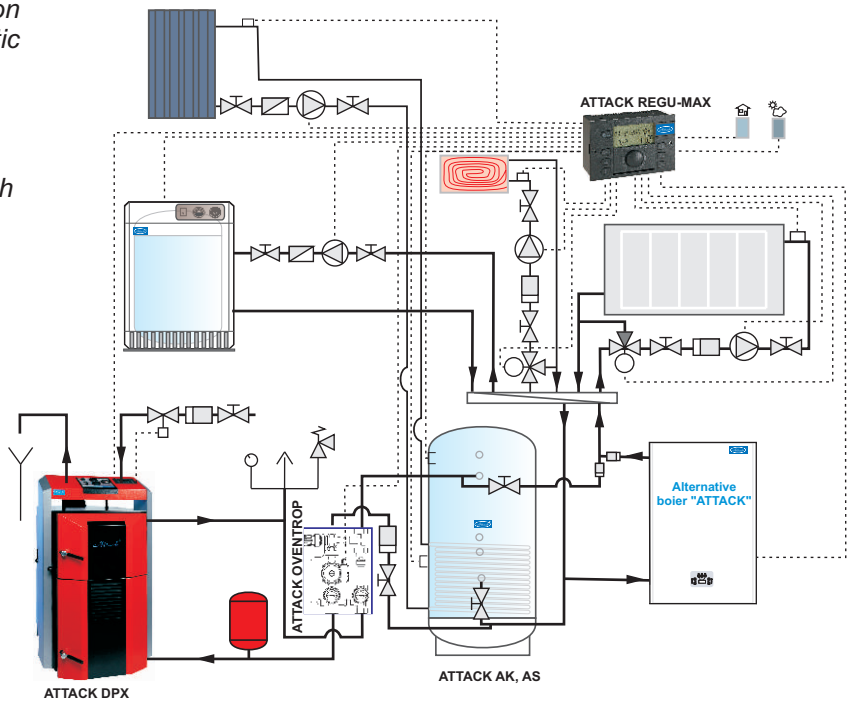
CLOCK FUNCTION

Heating with own time program, D.H.W. warming with week time program, 15 holiday periods.

TECHNICAL DATA

Mains connection	230 V +6% / -10%
Frequence	50...60 Hz
Output	max. 5,8 VA
Recommended fuse	max. 6,3 VA slow
Protection degree	Mains connection
Dimensions (incl. panel)	144 x 96 x 75 (Wx H x D)

EXAMPLE OF CONNECTION FOR REGULATOR ATTACK REGU-MAX

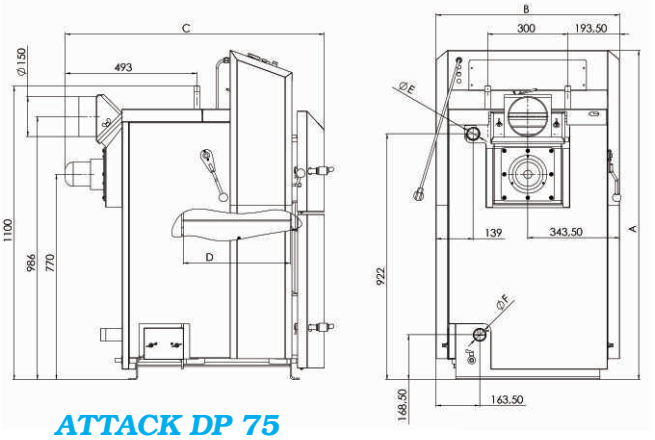


TECHNICAL PARAMETERS

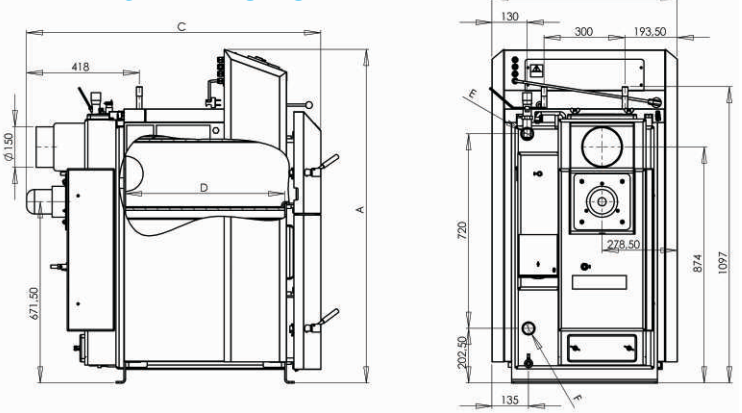
		ATTACK DP					ATTACK DPX					
Parameter	**Units**	**DP25**	**DP35**	**DP45**	**DP75**	**DP95**	**DPX15**	**DPX25**	**DPX30**	**DPX35**	**DPX40**	**DPX45**
Nominal output (version Standard)	kW	25	35	45	75	95	15	25	30	35	40	45
Output range (version Profi)	kW	10 ÷ 25	14 ÷ 35	18 ÷ 45	30 ÷ 75	38 ÷ 95	6 ÷ 15	10 ÷ 25	12 ÷ 30	14 ÷ 35	16 ÷ 40	18 ÷ 45
Heating surface	m2	1,52	1,74	1,95	3,6	5,6	1,98	2,52	2,78	2,78	3,03	3,03
Volume of feeding chamber	dm3	125	158	190	360	440	72	125	158	158	190	190
Dimension of feeding door	mm	235x445	235x445	235x445	235x445	235x445	235x445	235x445	235x445	235x445	235x445	235x445
Prescribed chimney draught	Pa	20	22	24	26	28	16	20	22	22	24	24
Max. operation overpressure of water	kPa	250	250	250	250	250	250	250	250	250	250	250
Pressure loss of water (ΔT 10K)	kPa	2,1	4	6,1	8,8	8,8	1,9	2,3	4,4	4,4	6,6	6,6
Pressure loss of water (ΔT 20K)	kPa	0,6	0,8	1,1	1,6	1,6	0,6	0,7	1	1	1,8	1,8
Boiler weight	kg	370	405	430	650	800	370	430	460	460	490	490
Diameter of the flue gas outlet	mm	150	150	150	150	150	150	150	150	150	150	150
Boiler height "A"	mm	1240	1240	1240	1460	1560	1240	1240	1240	1240	1240	1240
Boiler width "B"	mm	690	690	690	700	700	690	690	690	690	690	690
Boiler depth "C"	mm	1090	1190	1295	1750	1750	860	1160	1260	1260	1445	1445
Length of feeding chamber "D"	mm	590	690	790	1100	1100	400	590	690	690	790	790
Diameter of the C.H. flow connection	"	G6/4"	G6/4"	G2"	G2"	G2"	G6/4"	G6/4"	G6/4"	G6/4"	G6/4"	G6/4"
Diameter of the C.H. return connection	"	G6/4"	G6/4"	G2"	G2"	G2"	G6/4"	G6/4"	G6/4"	G6/4"	G6/4"	G6/4"
Level of electrical protection	IP	21	21	21	21	21	21	21	21	21	21	21
Electrical input	W	38	38	48	54	108	32	38	48	54	54	78
Boiler efficiency	%	85,3	85,3	86	86,2	80,6	91,3	90,4	90,1	90,1	90,2	90,2
Boiler class	—	3	3	3	3	3	3	3	3	3	3	3
Flue gas temperature at nominal output	°C	230	225	220	262	287	150	160	170	170	190	190
Flow of the flue gas at nominal output	kg/s	0,019	0,021	0,027	0,033	0,035	0,019	0,019	0,021	0,021	0,027	0,027
Max. noise level	dB	65	65	65	65	65	65	65	65	65	65	65
Type of fuel	—						Wood logs with relative humidity of 12% - max. 20%, O 50 -150 mm					
Average wood consumption	kg/h	7,75	9,75	11,75	18,7	29,2	3,9	6,5	7,8	9,1	10,4	11,75
Approximate wood consumption of wood per season	—						1 kW = 0,9 m^3					
Max. lengths of wood logs	mm	550	650	750	1000	1000	350	550	650	650	750	750
Operation time at max. output	h	2,5	2,5	2,5	2,5	2,5	3	3	3	3	3	3
Water volume in the boiler	l	68	78	87	164	250	80	100	110	110	128	128
Recommended volume of accumulation tank	l	625	900	1200	1800	2400	375	625	750	900	1000	1200
Voltage	V/Hz						230/50					
Range for temperature setting of heating water	°C						65 ÷ 90					
Range of the room temeprature setting	°C						10 ÷ 27					
Current carrying capacity of boiler regulator´s contacts (version Profi)		230V/2A					230V/2A					

DIMENSIONS

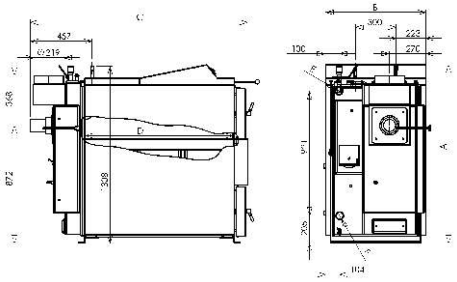
ATTACK DPX



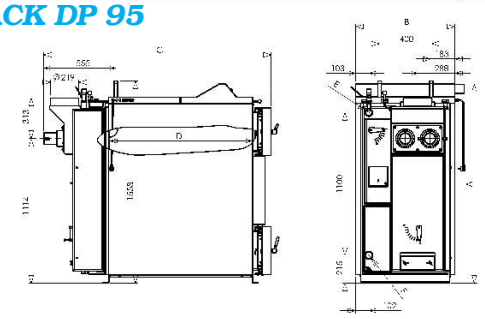
ATTACK DP 25-45



ATTACK DP 75



ATTACK DP 95



Producer: Attack®

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ATTACK, s.r.o. - aktualizácia 08/2010

Producer ATTACK, s.r.o. reserves right of product technical changes without previous announcement.